

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : SHINAGAWA REFRACT CO LTD

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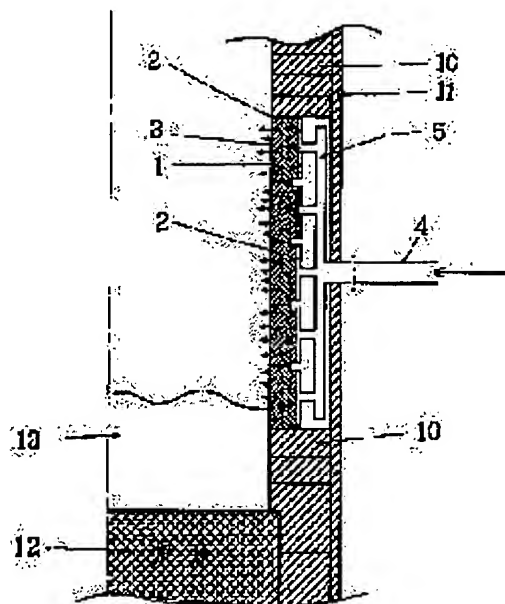
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## (54) STRUCTURE OF SIDE WALL OF INCINERATING FURNACE AND BRICK FOR SIDE WALL OF INCINERATING FURNACE

(57)Abstract:

**PURPOSE:** To eliminate the projection of the side wall of a combustion chamber, permit the continuous operation of an incinerating furnace and eliminate the adhesion of ash and/or clinker to the wall of the furnace by lining the inside of the furnace with porous SiC bricks equipped with a cooling gas distributing mechanism on the back surface of the same.

**CONSTITUTION:** Porous SiC bricks 1 are arranged on a side wall at the inner surface side of a furnace and a metallic case 2 is mounted on the back surface of the SiC bricks while a gap 3 for cooling gas pool is formed between the metallic case 2 and the back surface of the SiC bricks 1. Cooling gas distributing pipes 5 branched from a cooling gas supplying pipe 4 communicating with the cooling gas source are opened and communicate with respective gaps 3. In this case, the porous SiC brick contains 40-90wt.% of SiC and whose ventilating amount is specified to be 20-100cm<sup>3</sup>.cm/sec.cm<sup>2</sup>.g/cm<sup>2</sup>. By this method, the projection of the side wall of the combustion chamber is eliminated, the continuous operation of an incinerating furnace is permitted while the adhesion of ash and/or clinker to the furnace wall can be eliminated.



## LEGAL STATUS

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converted registration]

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[Patent number] 2774918

[Date of registration] 24.04.1998

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[Date of extinction of right] 24.04.2001

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**CLAIMS**

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[Claim(s)]

[Claim 1] Incinerator side-attachment-wall structure characterized by carrying out lining of the porosity SiC brick which possesses a coolant gas partition system at a tooth back to the furnace inside.

[Claim 2] Incinerator side-attachment-wall structure according to claim 1 where said coolant gas partition system is the cooling gas field which possesses a coolant gas supply pipe at the tooth back of porosity SiC brick.

[Claim 3] porosity SiC brick -- permeability of 20-100cm<sup>3</sup>/40 - 90 % of the weight [ of SiC contents ], and cm/sec-cm<sup>2</sup>, and g/cm<sup>2</sup> it is -- incinerator side-attachment-wall brick characterized by things.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the porosity SiC brick for incinerator side-attachment-wall structure and incinerator side attachment walls which consists of porosity SiC brick which has a coolant gas partition system.

[0002]

[Description of the Prior Art] The side attachment wall of the furnace internal combustion glow room of an incinerator is used under very severe conditions. Since it is eaten away by the occurring various gas while the conventional incineration object is exposed to a 1300-1400-degree C elevated temperature by combustion with the calorific value of 2000 - 2500 kcal/kg by recently, although the furnace paries-medialis-orbitae maximum temperature was also about 1050-1100 degrees C in 1000 - 1500 kcal/kg calorific value, the high-class SiC brick of 85% or more of SiC contents is usually used.

[0003] For example, the technique which the technique "side-attachment-wall tooth-back structure of an incinerator" Becoming is indicated by JP,58-22818,A, and using SiC brick for a side attachment wall is indicated, and "air-cooling box-frame construction of an incinerator" Becomes JP,3-45810,A is indicated, the furnace inside is formed by the wall made from a ceramic, and the structure which stuck the heat insulator on the tooth back of this wall made from a ceramic is indicated.

[0004]

[Problem(s) to be Solved by the Invention] Although SiC brick is extremely excellent in points, such as abrasion resistance, corrosion-proof nature, spalling resistance, and clinker \*\*\*\*\*, compared with other the refractory brick of a high alumina, for example, quality, and fireclay bricks Oxidation expansion is carried out in the oxidizing atmosphere of high temperature, and SiC is SiO<sub>2</sub> by oxidation in that a furnace wall \*\*\*\*\*s as a result \*\*\*\*. By changing It bulges in an arc shape or it is known that the operation front face of SiC brick may vitrify, and a combustion object, ashes, etc. may adhere, for this reason the operation of an incinerator of the furnace wall of a combustion chamber may become impossible by excessive adhesion of a clinker.

[0005] Since there is little cooling effect and it does not result in the temperature fall of a furnace internal surface only in air cooling on the tooth back of a furnace wall by the rise of operation temperature, a crack generates such a phenomenon by the anomalous expansion (the volume becomes twice, when SiC oxidizes and it is set to SiO<sub>2</sub>) accompanying the aforementioned SiC oxidation. Furthermore, although the example from which brick hunger oxidizes easily by the gas leak as a result of elevated-temperature-izing, and brick is omitted is accepted (defect of said well-known technique), and a periphery is cooled in "the air-cooling box-frame construction of an incinerator" given [ said ] in JP,3-45810,A since Ayr blows off from the slit-like clearance between tile-like bricks, it is not cooled, but a brick center section has severe adhesion of a clinker, and has the defect by which a tile (SiC brick) is damaged.

[0006]

[Means for Solving the Problem] the incinerator side-attachment-wall structure which this invention person etc. develops this invention variously as a result of examination and an experiment, and is characterized by the engineering construction of this invention carry out lining of the porosity SiC brick which possesses a coolant gas partition system at a tooth back to the furnace inside in order to solve many defects of the conventional method like the above-mentioned -- it is -- said side-attachment-wall brick -- permeability of 20-100cm<sup>3</sup>, 40 - 90 % of the weight [ of SiC contents ], and cm/sec-cm<sup>2</sup>, and g/cm<sup>2</sup> it is -- . By considering as such engineering construction, there is no overhang of a combustion chamber side attachment wall, continuous running of an incinerator becomes possible, there is no adhesion in ashes and the furnace wall of a clinker, and continuous running of a long period of time (about ten years) becomes possible.

[0007] The example of a concrete number of this invention is explained in full detail based on an accompanying

drawing.

[0008] Drawing 1 is drawing of longitudinal section of the incinerator side-attachment-wall structure which applied this invention, and 1 is porosity SiC brick. Have arranged in the furnace inside side of a side attachment wall, and, as for this SiC brick 1, the tooth back is equipped with metal casing 2. the coolant gas distribution pipe 5 which has formed the gap 3 for cooling gas fields between the tooth backs of this metal casing 2 and the SiC brick 1, and branched in each gap 3 from the coolant gas supply pipe 4 which is open for free passage in the source of coolant gas (not shown) -- respectively -- opening -- open for free passage. In addition, in drawing 1, the refractory brick for side attachment walls in 10 and 11 show an outer steel shell, and, as for 12, a hearth and 13 show a burned object, respectively.

[0009] The example of typical quality of the porosity (gas permeability) brick mentioned above is as follows.;

煉 瓦		A	B	C
品 質				
見 掛 気 孔 率 (%)		2 2	1 8	2 0
カ サ 比 重		2. 5 5	2. 6 5	2. 3 5
圧 縮 強 さ (kg/cm <sup>2</sup> )		8 0 0	1 2 0 0	8 0 0
荷 重 軟 化 点 (°C)		> 1 6 5 0	> 1 6 5 0	1 4 5 0
通 気 率 × 1 0 (cm <sup>3</sup> · cm/sec · cm <sup>2</sup> · g/cm <sup>2</sup> )		1 0 0	2 0	5 0
化 学 成 分 (%)	S i C	8 7	8 8	4 0
	S i O <sub>2</sub>	5	4 4	4 0
	F e <sub>2</sub> O <sub>3</sub>	1	1	1

\* : 化学成分は主要成分のみ記載し、残余は多孔質煉瓦に無害で通常随伴される成分である。

[0010] Drawing 2 is drawing of longitudinal section of other examples of this invention, and is the example of structure which equipped the furnace wall inside with porosity brick with mortar 6 in this example, and opened the cooling gas supply line 4 for free passage as a gap (gas field) 3 of one body with metal casing 2 at that tooth back in this gap 3.

[0011] This invention is not limited to the above-mentioned example, but modification within the summary of this invention and an alteration are included by this invention.

[0012] Moreover, since it will become cost quantity while oxidation of SiC serves as size if adhesion of a clinker is size and the SiC component of porosity SiC brick exceeds 90 % of the weight at less than 40 % of the weight Make a SiC content into 40 - 90% of the weight of within the limits, it becomes insufficient cooling permeability (cm<sup>3</sup>, cm/sec-cm<sup>2</sup>, and g/cm<sup>2</sup>) less than at 20, and coating adheres. SiC brick is damaged, if 100 is exceeded, while it will become it is large and unstable operating refrigeration capacity, it is admitted that combustion near a side attachment wall starts, and the permeability of above-mentioned within the limits is the optimal.

[0013]

[Effect of the Invention] According to this invention, the following operation effectiveness is attained by considering as the engineering construction like \*\*\*\*.;

(1) It is cooled by 800 degrees C or less, and the brick side of a combustion chamber side attachment wall is usually held below at the oxidation initiation temperature of SiC. Moreover, since coolant gas (Ayr) was emitted from the whole furnace wall surface, oxidation of the SiC brick which constitutes these was controlled, the overhang by

oxidation expansion was lost, and continuous running of an incinerator became possible.

[0014] (2) Porosity brick hardware and really has composition, the brick hunger which was being used conventionally was unnecessary, since coolant gas was blown into the furnace from porosity brick, there is no corrosion of the hardware accompanying a combustion gas leak, and the brick omission of it were lost.

[0015] (3) Adhesion in the ashes of a burned object and the furnace wall of a clinker was lost, and \*\*\*\* for affix removal and the need for repair stopped continuing for the long period of time (continuous running is presumed to be about ten years).

[0016] (4) While air cooling of the whole furnace wall internal surface was carried out, since local combustion was lost, adhesion of a clinker etc. was lost, and the local damage on a furnace wall was also lost.

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TECHNICAL FIELD

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**PRIOR ART**

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EFFECT OF THE INVENTION

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TECHNICAL PROBLEM

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MEANS

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] Drawing of longitudinal section of the incinerator side-attachment-wall structure which applied this invention

[Drawing 2] Drawing of longitudinal section of other examples of this invention

[Description of Notations]

1 Porosity Brick

2 Metal Casing

3 Gap

4 Coolant Gas Supply Pipe

5 Coolant Gas Distribution Pipe

6 Mortar

10 Refractory Brick for Side Attachment Walls

11 Outer Steel Shell

12 Hearth

13 Burned Object

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[Translation done.]

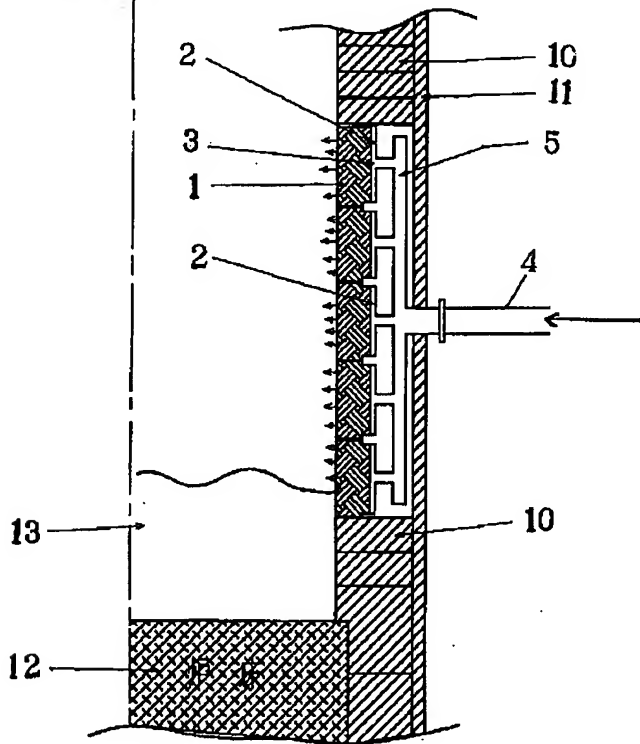
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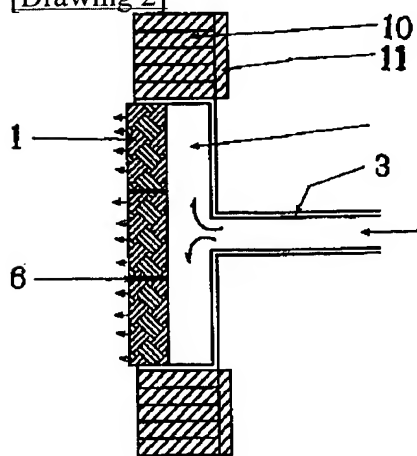
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DRAWINGS

[Drawing 1]



[Drawing 2]



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